

## **Appendix F – Social and Economic Assessment**

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### **F.1. Introduction**

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The Lake Tahoe Basin Management Unit (LTBMU) is an integral part of the economy and social life of Lake Tahoe Basin communities. Visitors from around the country and the world are attracted to Lake Tahoe to enjoy a variety of recreational activities. The scenic quality of Lake Tahoe and its surrounding landscape make visiting the Lake Tahoe Basin a one-of-a-kind experience. The LTBMU contributes to the Lake Tahoe Basin's scenic quality through the conservation and management of vegetation, waterways, infrastructure, and recreation. Recreation opportunities supported by interpretation and conservation education enrich the recreation experience and contribute to enhancing the public's environmental literacy. The Lake Tahoe Basin's economy is driven largely by recreation and tourism. The LTBMU plays an important role in providing outdoor recreation opportunities and preserving the scenic quality of the Tahoe Basin's lands and waterways.

Information and data used in this assessment was collected from the following sources:

- US Census Bureau statistics
- US Bureau of Labor Statistics
- US Bureau of Economic Analysis
- Economic Profile System by Headwaters Economics
- National Visitor Use Monitoring (NVUM) survey

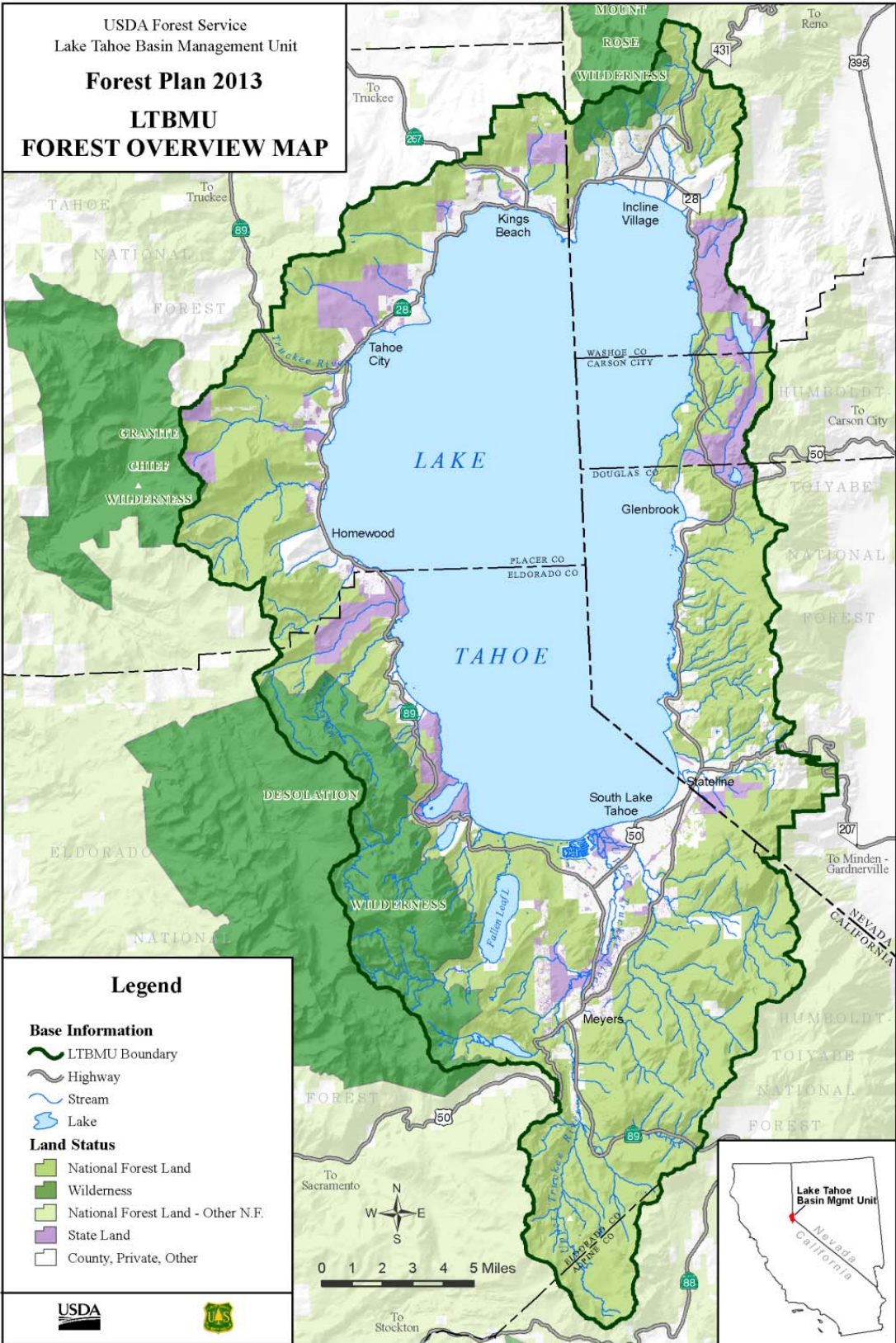
## **F.2. Study Area**

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The Lake Tahoe Basin is composed of approximately 200,000 acres of land, of which the Lake Tahoe Basin Management Unit manages approximately 150,000 acres. While the land area of the Lake Tahoe Basin is relatively small, there are many political entities represented. Within the Lake Tahoe Basin, there are five counties, the Tahoe Regional Planning Agency (TRPA), two cities, and two states (see Figure F1). . Along with state, county, and city ownership, close to 90% of Lake Tahoe Basin lands are in public ownership.

The communities within the Lake Tahoe Basin represent only a small share of the surrounding county's total population (which includes the large communities of Placerville, CA and Reno, NV) therefore social and economic data based on county level data overwhelms the social and economic trends of Lake Tahoe communities. While the communities in the Basin differ in many respects, they are united by geography, economy, and social values. So, two assessment areas are used in the Social and Economic Assessment to illustrate the roles and contributions the LTBMU plays in providing local and regional communities with social and economic benefits. The use of multiple study areas also reveals management implications associated with servicing different populations.

The larger area is the Greater Lake Tahoe Area (GLTA) (Figure F1). The GLTA is representative of the region's functional economy, meaning this is where Lake Tahoe Region residents and businesses are likely to purchase a significant amount of their goods, services, and housing. Counties within the GLTA are influenced by spending patterns of residents, visitors and businesses within the LTR, and have a direct influence on visitor rates and use patterns on the LTBMU.



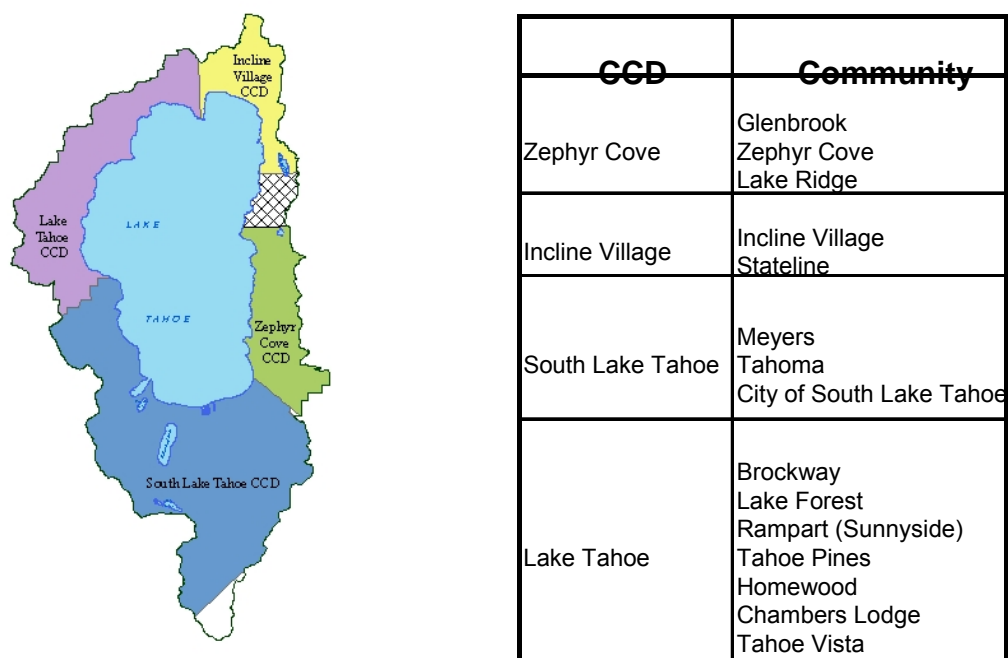
### Figure F1. Greater Lake Tahoe Area (GLTA)

Greater Lake Tahoe Area	
State	County
California	El Dorado
	Alpine
	Placer
	Nevada
Nevada	Washoe
	Carson City
	Douglas

The smaller area is located within the Lake Tahoe Basin Management Unit's exterior boundary and is referred to as the "Lake Tahoe Region," or LTR (Figure F2). The communities within the LTR have a relatively high degree of economic responsiveness to recreation revenues, and there are pronounced social differences between Lake Tahoe communities and adjacent communities located outside of the Lake Tahoe Basin. Census County Divisions (CCDs) from the US Census Bureau are the geographic units used to analyze the LTR social and economic assessment.

The Lake Tahoe Basin Management Unit's influence on the Lake Tahoe Region economy is much greater than on the Greater Lake Tahoe economy given the relative size and diversity of the two economies.

Census County Divisions (CCD)	Community
Zephyr Cove	Glenbrook Zephyr Cove Lake Ridge
Incline Village	Incline Village Stateline
South Lake Tahoe	Meyers Tahoma City of South Lake Tahoe
Lake Tahoe	Brockway Lake Forest Rampart (Sunnyside) Tahoe Pines Homewood Chambers Lodge Tahoe Vista



**Figure F2. Lake Tahoe Region by Community Civil Division (CCD)**

### F.3. Background

For thousands of years, the people of the Washoe Tribe traveled to the shores of Lake Tahoe in the summer to live, trade, and reaffirm tribal unity. The Washoe way of life was greatly impacted in 1859 with the Virginia City silver strike, which marked the beginning of the Comstock Era. By 1890, the forests of Lake Tahoe had been largely clear-cut to fuel mining operations, shore-up mine shafts, and provide building supplies for rapidly growing Virginia City. The lands around Lake Tahoe provided forage for sheep and were home to Basque shepherders from the 1850s to the 1950s.

In 1899, President William McKinley designated 13,000 acres of Lake Tahoe forests as National Forest Reserves, which would mark the beginning of federal acquisitions in the Tahoe Basin. Between 1890 and 1920, Lake Tahoe was a popular resort destination for wealthy and elite families from San Francisco. Roads were paved during the 1920s and 1930s; Lake Tahoe became accessible to a greater number of people, and tourism and recreation soon became a dominant industry in the Lake Tahoe Basin. The 1940s marked the beginning of the gaming industry, which grew quickly, attracting vacationers looking for urban amenities in a scenic setting. With the 1960 Winter Olympic Games at Squaw Valley Resort, development escalated as Tahoe became known as an international recreation destination.

At this same time, the Forest Service acquired large tracts of land in the Lake Tahoe Basin, and management of this land was divided among three forests: the Eldorado, the Humboldt-Toiyabe and the Tahoe National Forest. However, by 1973, National Forest land managers recognized the need to manage Lake Tahoe's upland resources separately to preserve the unique nature of Lake Tahoe. It was with this goal that the Lake Tahoe Basin Management Unit was formed by carving out sections of the three forests to approximate Lake Tahoe's watershed boundary.

Much of the LTBMU's management priorities and objectives have been driven by legislative acts, which have served to authorize funding for the acquisition and restoration of lands within the Lake Tahoe Basin. In 1980, Congress passed the Santini-Burton Act (PL 96-586), which authorized funding and directed the LTBMU to acquire environmentally sensitive lands, restore watersheds on acquired National Forest System lands, and administer erosion control grants to local government. Thirteen thousand acres have since been acquired through the Santini-Burton Act, of which many are small parcels interspersed throughout urban neighborhoods.

The Lake Tahoe Restoration Act (LTRA), signed by President Bill Clinton in 1997, recognized the unique scenic and ecological features of Lake Tahoe, as well as Lake Tahoe communities' economic dependence on the perpetuation of these characteristics. The LTRA was designed to enable the Forest Service to plan and implement significant new environmental restoration and forest management activities to address water quality, water clarity, and forest health in coordination with Federal, State, local, regional, tribal and private entities. While the LTRA was intended to increase restoration in the Lake Tahoe Basin, this objective was not fully implemented due to lack of federal funding until the Southern Nevada Public Lands Management Act (SNPLMA) was amended in 2003. The SNPLMA amendment guaranteed agencies in the Lake Tahoe Basin a consistent flow of federal funds for eight years, with an average annual funding level of \$37.5 million. With these funds, large watershed restoration projects to restore meadows and forest health and reduce fuels have commenced. This funding is scheduled to end by 2015, with some projects lasting for a few years past when funding is granted.

## **F.4. Social Conditions and Trends**

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### **Population**

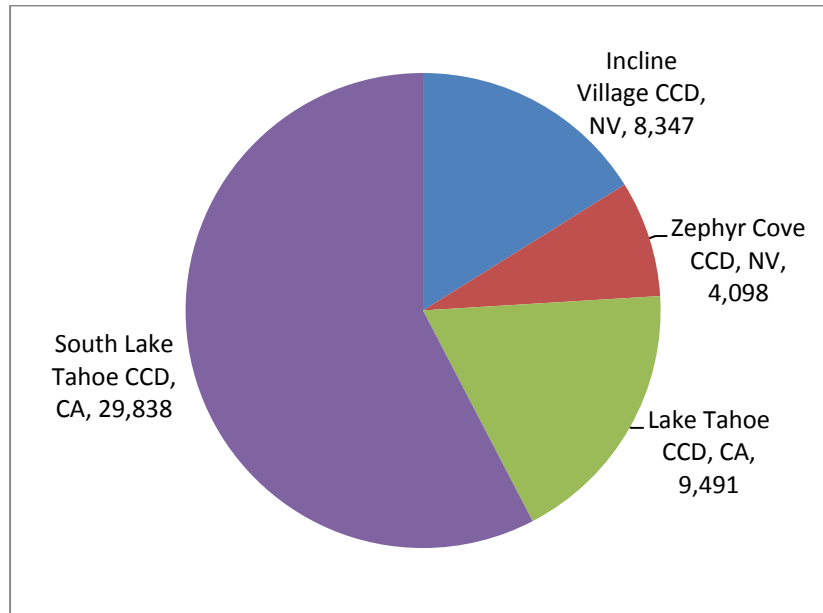
The LTR, with a population of 51,774 represents a small fraction of the GLTA population of 1,043,723 people in 2011. Within the LTR, more than half of the population resided in the South Lake Tahoe CCD. Between 2000 and 2011, Nevada's population grew by almost 34%, while California's population grew at a much slower rate increasing by a little over 9%. The GLTA grew in population by close to 25%. In contrast, the LTR lost 17.6% of its population. An article in the Sierra Sun (March 9, 2011) attributed this loss in population to a worsening economy. Also, the gaming industry declined over 50% since 1990 so there are fewer jobs in the LTR to hold people there. There is also a trend toward increasing second home ownership by people who do not live year-round in the Lake Tahoe Basin area. These are used as vacation homes and do not contribute toward such things as kids in schools, year-round shopping in the local community, etc.

**Table F1. Population 2000-2011**

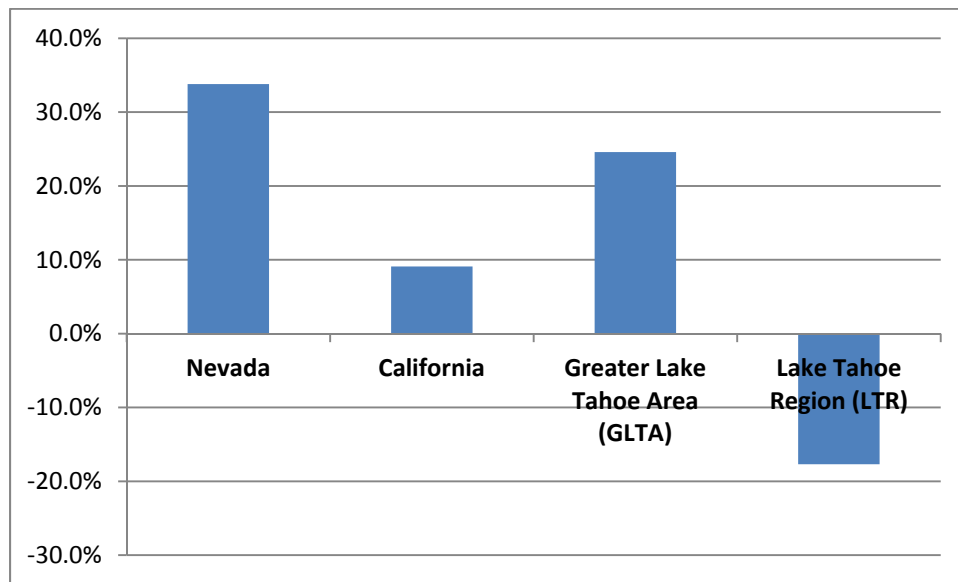
Assessment Area	2000 Census	2011 ACS Census	% Change Since 2000
Nevada	1,998,257	2,673,396	33.8%
California	33,871,648	36,969,200	9.1%
Carson City Co, NV	52,457	55,378	5.6%
Douglas County, NV	41,259	47,058	14.1%
Washoe County, NV	339,486	417,855	23.1%
El Dorado County, CA	156,299	179,878	15.1%
Placer County, CA	248,399	343,554	38.3%
Greater Lake Tahoe Area (GLTA)	837,900	1,043,723	24.6%
Incline Village CCD, NV	9,952	8,347	-16.1%
Zephyr Cove CCD, NV	6,739	4,098	-39.2%
Lake Tahoe CCD, CA	12,158	9,491	-21.9%
South Lake Tahoe CCD, CA	34,042	29,838	-12.3%
Lake Tahoe Region (LTR)	62,891	51,774	-17.7%
% LTR of GLTA	7.5%	5.0%	

ACS = American Community Survey

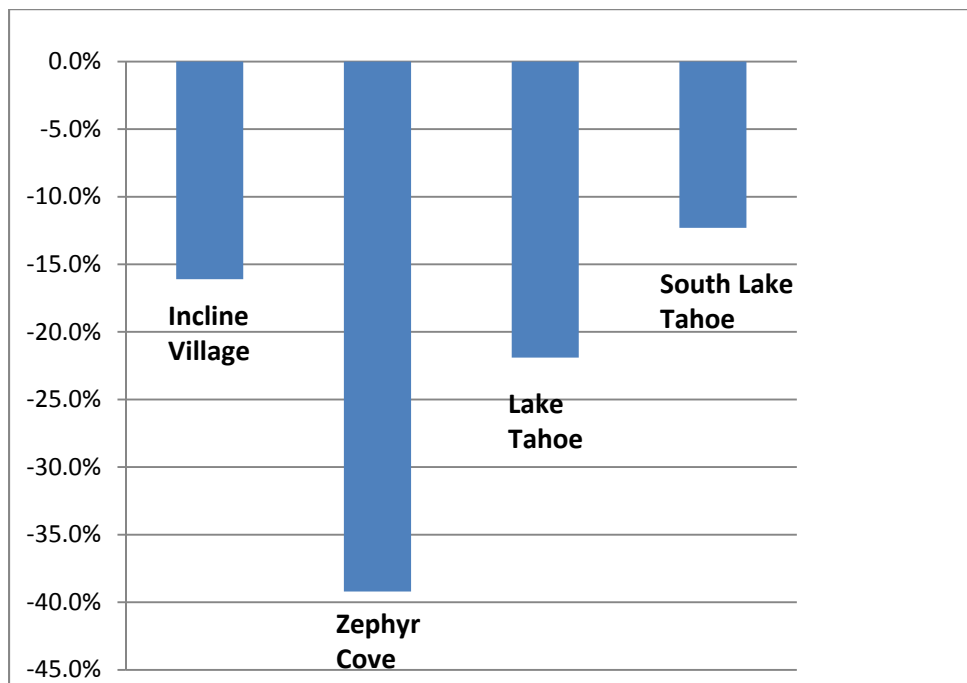




**Figure F3. Percent Population, LTR, 2011.**



**Figure F4. Population Change, Regional, –2000-2011.**



**Figure F5. Population Change, LTR, 2000 - 2011.**

## Race and Ethnicity

Compared to California and Nevada, the GLTA and the LTR are not as racially and ethnically diverse. In the GLTA, 82% of the population is white, while in the LTR, 84% of the population is white. Within the LTR, South Lake Tahoe CCD is the most racially diverse of the four CCDs, followed by Lake Tahoe CCD.

Just over 37% of California's population was Hispanic in 2010, while Nevada's Hispanic population was reported at 26%. The GLTA had the lowest Hispanic population of the four regions, while the LTR, with a 22% Hispanic population was similar to Nevada's Hispanic composition. Within the LTR 12,206 people identified themselves as Hispanic during the 2010 census. The South Lake Tahoe CCD had the largest Hispanic population with 7,345 people representing 24% of the SLT CCD population. Lake Tahoe CCD was also 27% Hispanic, with 2,720 Hispanic residents. The South Lake Tahoe CCD and Lake Tahoe CCD had on average over 4 times the population of Hispanics than Incline Village and Zephyr Cove.

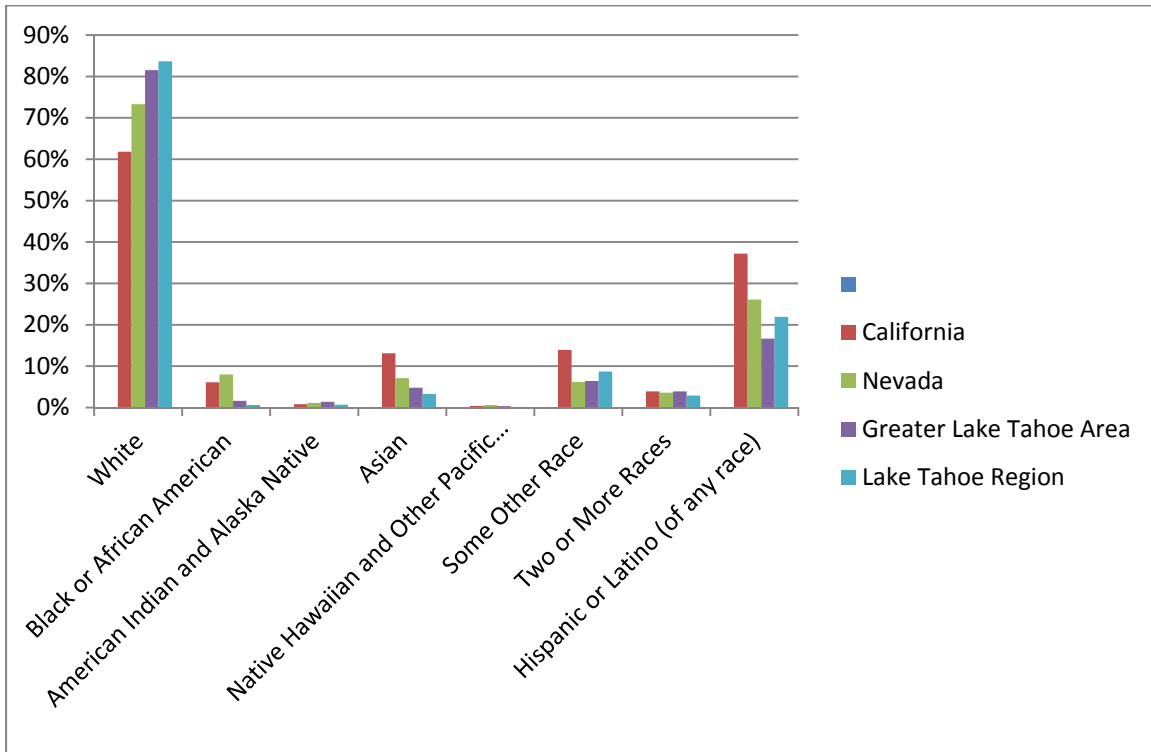


Figure F6. Race and Ethnicity, Regional, 2011.

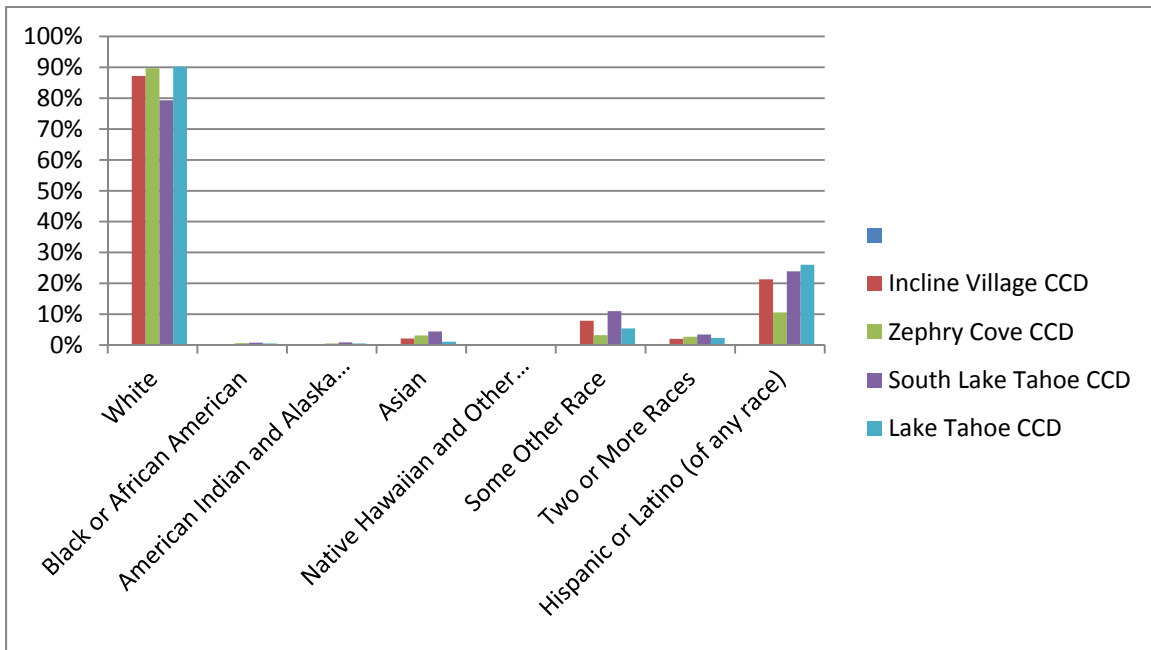


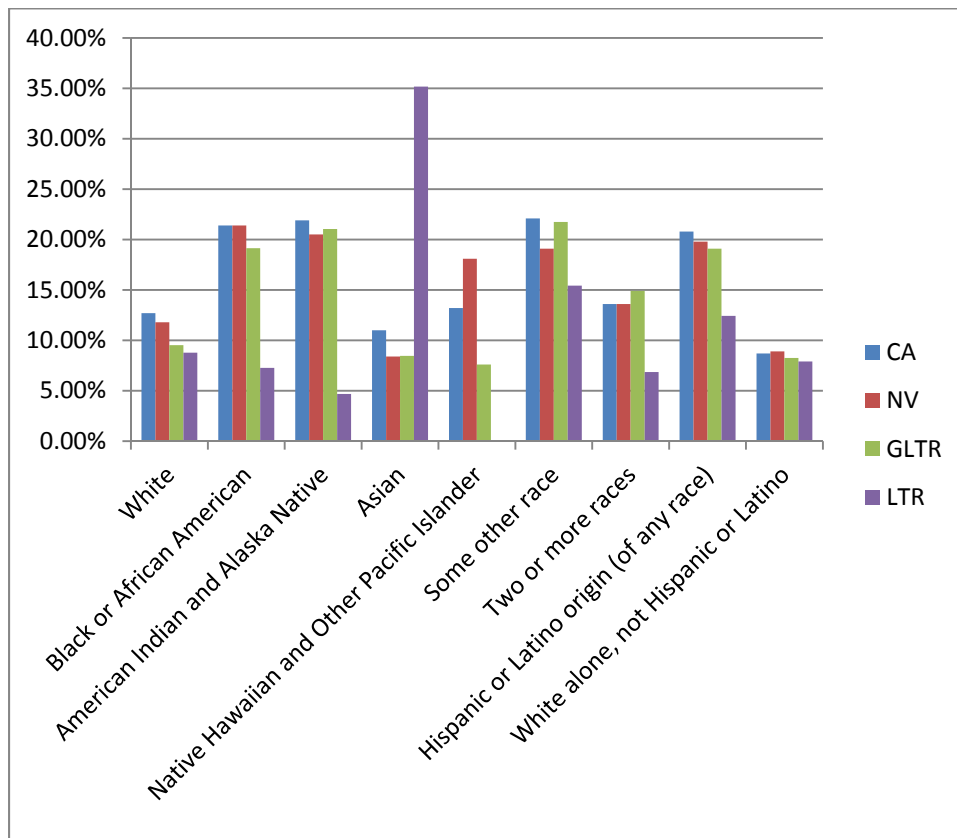
Figure F7. Race and Ethnicity by CCD, LTR, 2011.

**Table F2. Race and Ethnicity, LTR, 2011**

<b>Race/Ethnicity</b>	<b>Incline Village CCD</b>	<b>Zephyr Cove CCD</b>	<b>South Lake Tahoe CCD</b>	<b>Lake Tahoe CCD</b>	<b>Total Lake Tahoe Region</b>
<b>Total population</b>	8,347	4,098	29,838	9,491	51,774
One Race	8,339	4,058	28,670	9,332	50,399
White	7,632	3,812	23,849	9,010	44,303
Black or African American	19	3	139	39	200
American Indian and Alaska Native	130	0	451	72	653
Asian	282	47	1,001	57	1387
Native Hawaiian and Other Pacific Islander	28	1	1	0	30
Some Other Race	248	195	3,229	154	3826
Two or More Races	8	40	1,168	159	1375
HISPANIC OR LATINO					
Hispanic or Latino (of any race)	1,611	778	7,483	3,176	13,048
Not Hispanic or Latino	6,736	3,320	22,355	6,315	38,726

## Poverty

Census poverty estimates are based on a set of income thresholds for various family sizes and are the same regardless of geography or cost of living. If a family is found to make less than the threshold, then every family member is considered to be in poverty. So while it appears that across almost all races, people living in the GLTA and LTR experience less risk of living in poverty than the general population of California and Nevada, this may not accurately reflect the occurrence of poverty within the LTRs high cost-of-living census county divisions within the Lake Tahoe Basin.



**Figure F8. Poverty by Race and Ethnicity, Regional, 2011.**

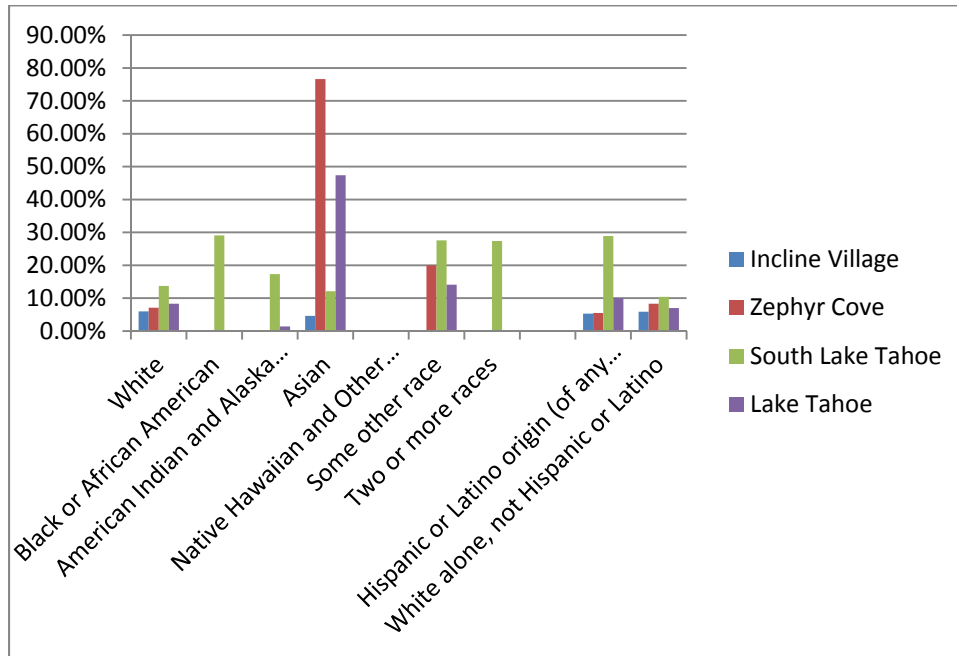
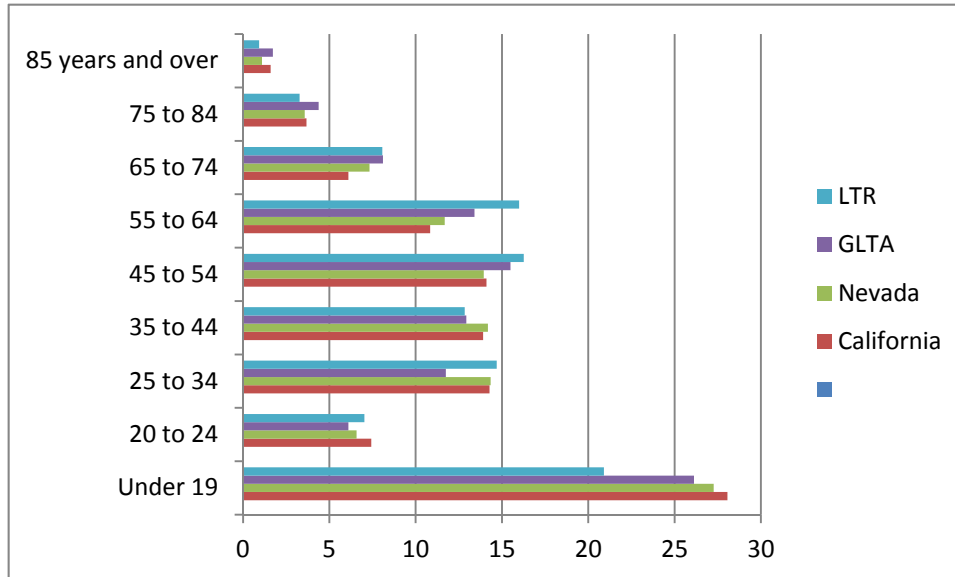


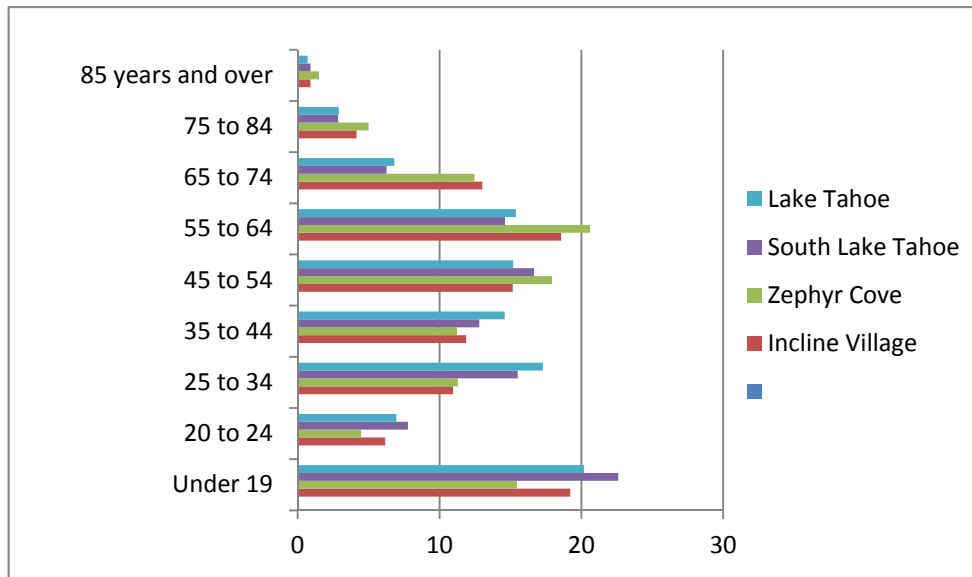
Figure F9. Poverty by Race and Ethnicity, LTR, 2011.

## Age Distribution

The GLTA and LTR had more people in the 45 to 64 age range than Nevada and California, and less people under 45 than Nevada and California. The GLTA and LTR had fewer young people under 19 than Nevada and California. When looking at communities in the LTR, Nevada community populations were older than California community populations. Fifty-four percent of Nevada communities within the LTR were 45 years and older, compared to California communities within the LTR at 41%.



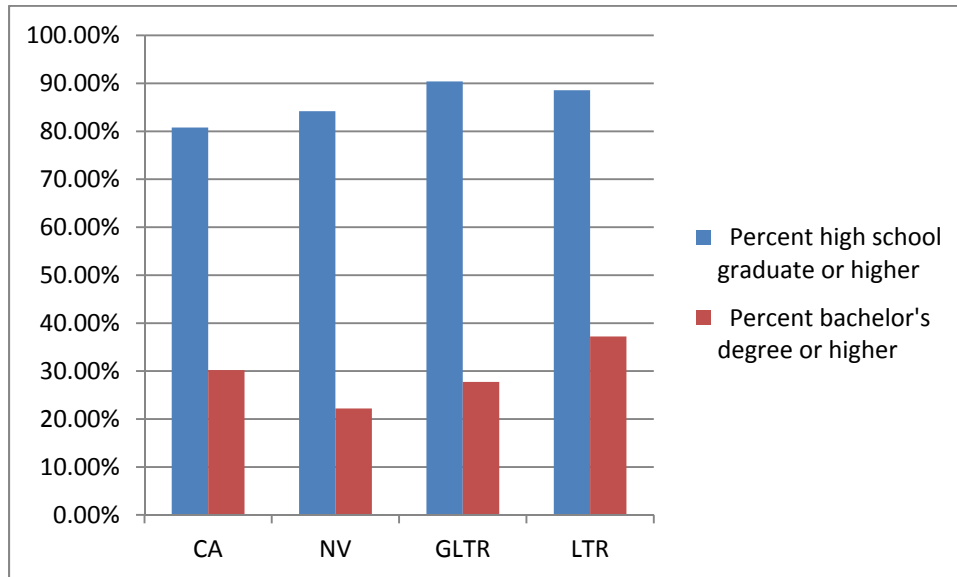
**Figure F10. Age Distribution, Regional, 2010.**



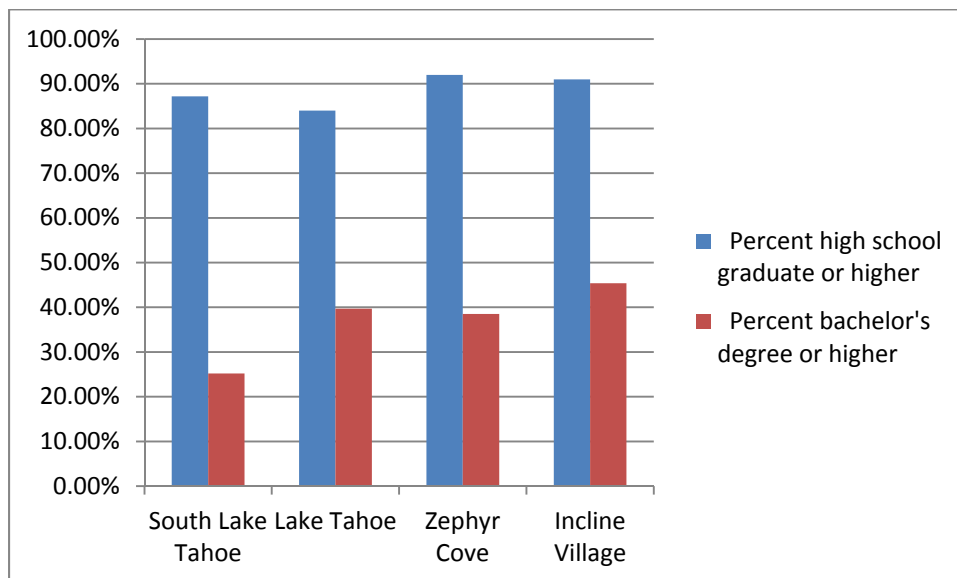
**Figure F11. Age Distribution, LTR, 2010.**

## Educational Attainment

Educational Attainment in the GLTA and LTR compared favorably against state percentages. Both the GLTA and LTR had a higher percentage of high school graduates than Nevada and California. When considering the percentage of population with a bachelor's degree or higher, the LTR outranked all other regions; however, GLTA was consistent with California and exceeded Nevada's rate.



**Figure F12. Educational Attainment, Regional, 2011.**

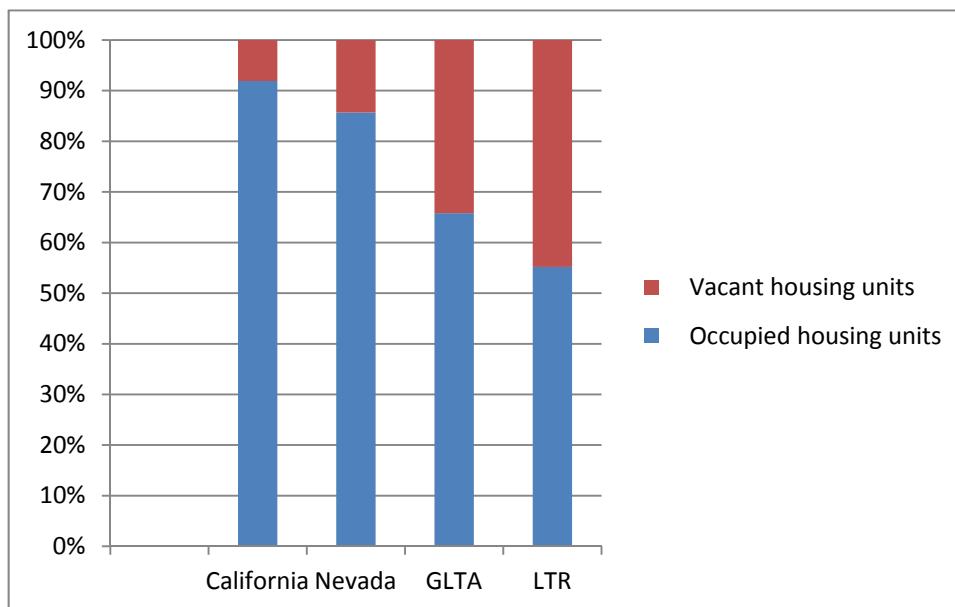


**Figure F13. Educational Attainment, LTR, 2011**



## Housing

When considering housing occupancy status, the LTR differs greatly from all other regions with a 45% vacancy rate, outstripped the next highest rate, which was for the GLTA at 34%. Of the vacant housing units, the LTR and the GLTA were used primarily for seasonal, recreational, or occasional use. Only 8% of the vacant homes in the LTR were rental units compared to 34% for California and 37% for Nevada. When looking at homeownership rates the GLTA exceeded all other regions, and the LTR was on par with California and Nevada. Housing data is from the 2010 Census.



**Figure F14. Housing Occupancy Status, Regional, 2010.**

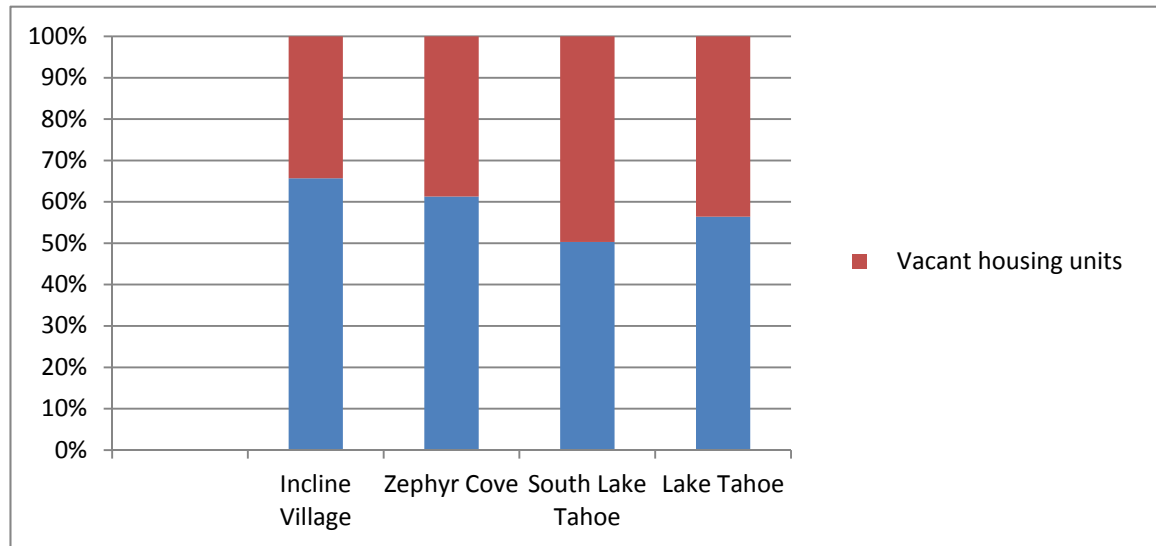


Figure F15. Housing Occupancy Status, LTR, 2010.

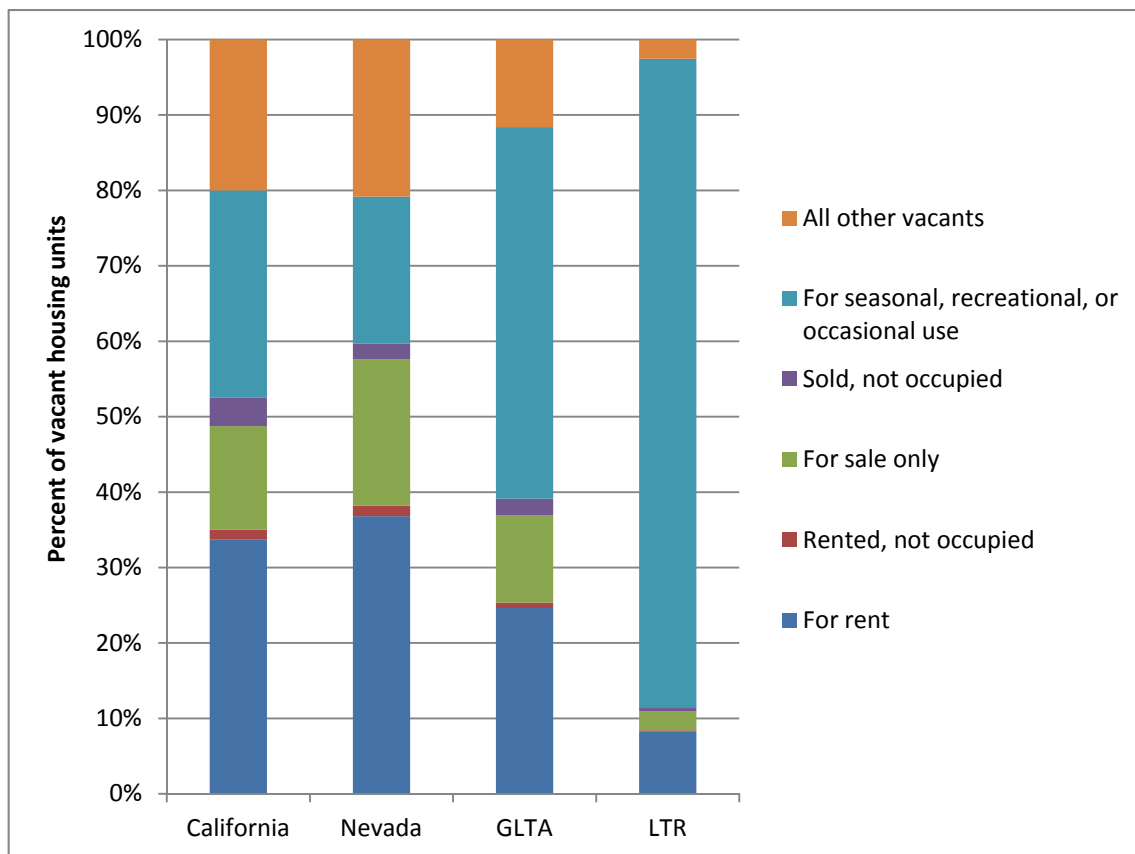
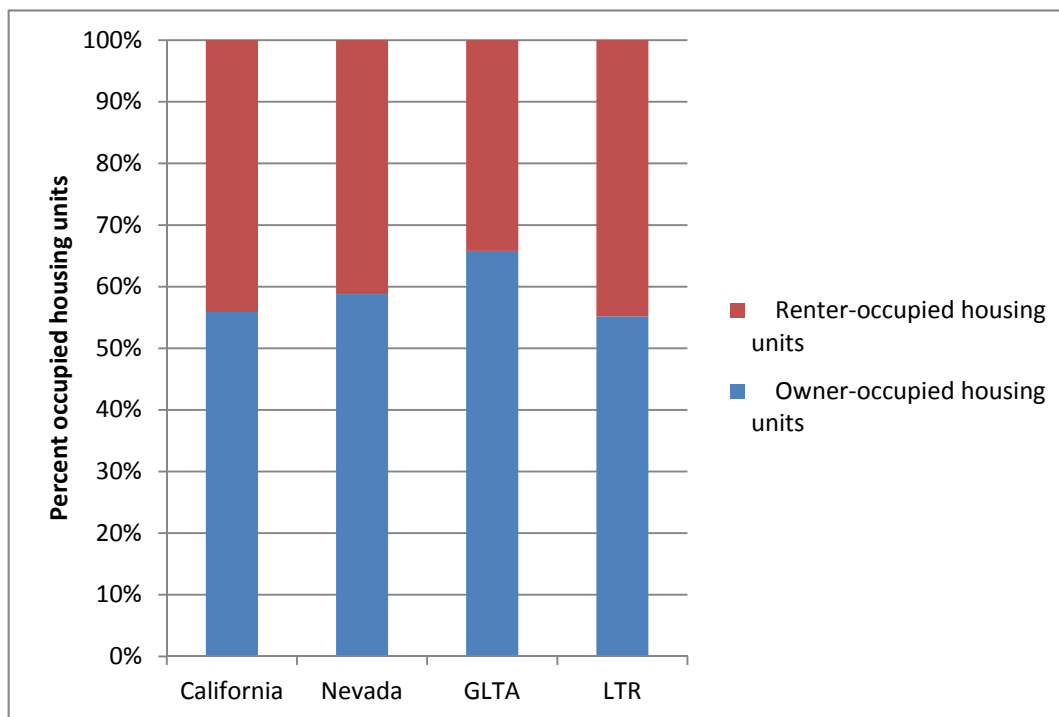


Figure F16. Housing Tenure, Regional, 2010.



**Figure F17. Renter vs. owner-occupied housing, 2010.**

## Discussion

The almost 25% rise in population between 2000 and 2011 in the GLTA translates into higher day-use demand being placed on recreation opportunities in the Lake Tahoe Basin. As reported by National Visitor Use Monitoring reports, shown in Figure F- 14), 41.7% of visitors live within the GLTA. Compared to the surrounding area and states of California and Nevada, it is unusual to see an almost 18% drop in population from 2000 to 2011 in the LTR. This is at least in part due to a decline in the gaming/casino industry, increased second home ownership, and the general decline in economic condition over this time period.

California LTR communities were generally younger and had a greater degree of ethnic diversity than Nevada communities. With respect to ethnic diversity, the LTR was just a little over half of the California Hispanic percent of population. This indicates a need to design interpretive displays, education programs and planning events that integrate the Lake Tahoe Basin's Hispanic communities in National Forest land management. Meetings designed to integrate the Hispanic community should be located in areas with the greatest concentration of Hispanic population.

Overall communities in the GLTA and LTR had relatively high educational attainment rates when compared to state rates. The GLTA and LTR high school graduation rates exceeded that of California and Nevada, as did three LTR communities: Incline Village CCD; Zephyr Cove CCD; and Lake Tahoe CCD; exceed state rates in percentage of bachelor's degree or higher.

The housing status in the LTR is vastly different in respect to occupancy status and vacancy status from the other regions compared in this study. Close to half of the housing units in the LTR are vacant for seasonal, recreational, and occasional use. This presents a challenge in respect to communicating with and involving absentee landowners in forest planning and programs.

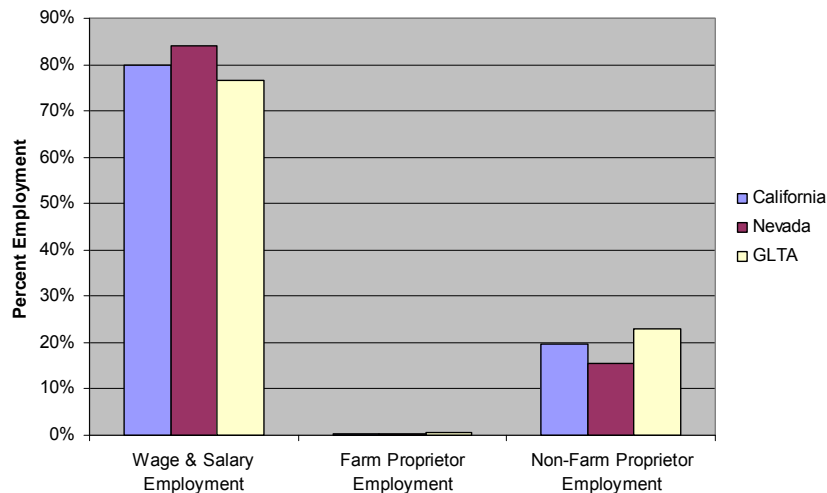
## **F.5. Economic Conditions and Trends**

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(Note: Employment and Income for the Lake Tahoe CCD's had not been updated to the 2010 Census as of this writing (9/16/11), so the write-up using the earlier information from the previous Social-Economic Specialist Report written by Christy Prescott (former LTBMU Economist and Susan Winter (Economist for the WO Ecosystem Management Coordination staff) is presented here as it was written.)

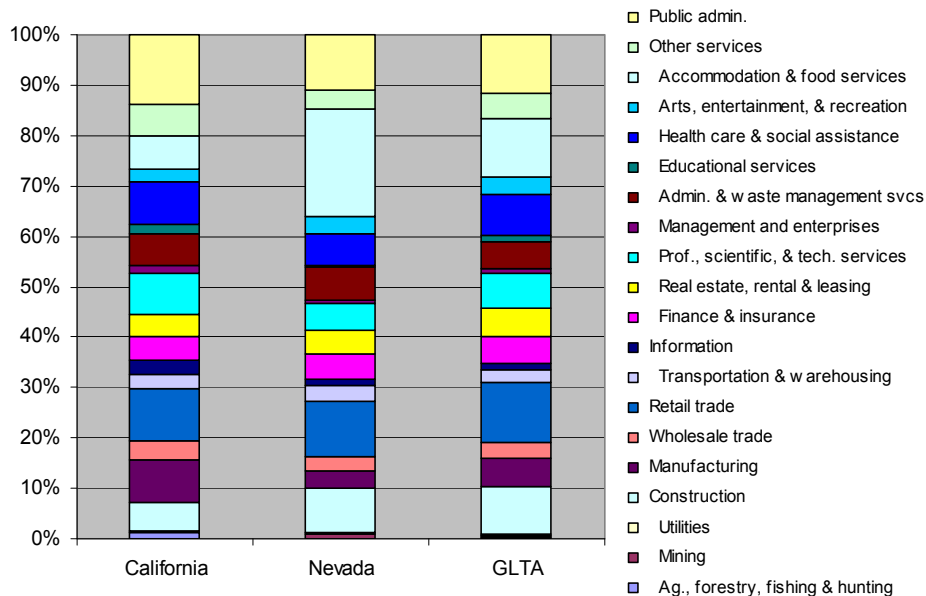
### **F.5.1 Employment (Current Condition and Trends)**

The number of full-time and part-time positions in the GLTA was 623,742 in 2003. Wage and salary positions comprised the largest sector, which accounted for 77% of employment, while non-farm proprietorship accounted for 23%, and farm proprietorship accounted for 0.5 %. The GLTA non-farm proprietor sector accounts for 3.4% more in employment and 3.5% lower in wage and salary employment than California and Nevada combined. Farm proprietor employment was slightly higher in the GLTA than in Nevada and California. Nevada and El Dorado Counties' employment composition differed the most from the GLTA, with a greater proportion of employment from non-farm proprietorships and lesser proportion of employment in wage and salary employment.



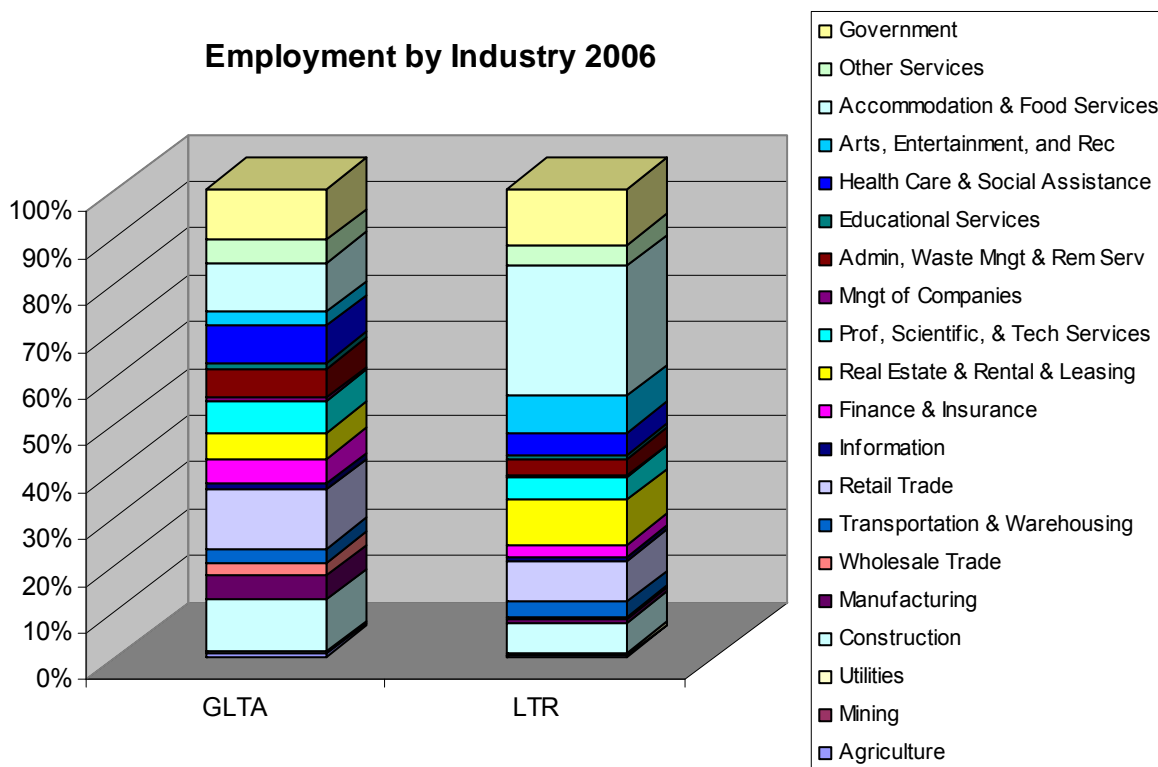
**Figure F18. Employment by Labor Sector, Regional, 2003**

When considering the GLTA's employment by industry compared to state figures, the GLTA more closely resembles California's employment structure over Nevada's. Public administration and retail sales provided the greatest share of employment in the GLTA and California. Employment in accommodations and food service was the third highest in the GLTA with 11%; however, Nevada outpaced the GLTA by 10%. Overall, the GLTA employment was more evenly distributed across industries than Nevada, but less so than California.



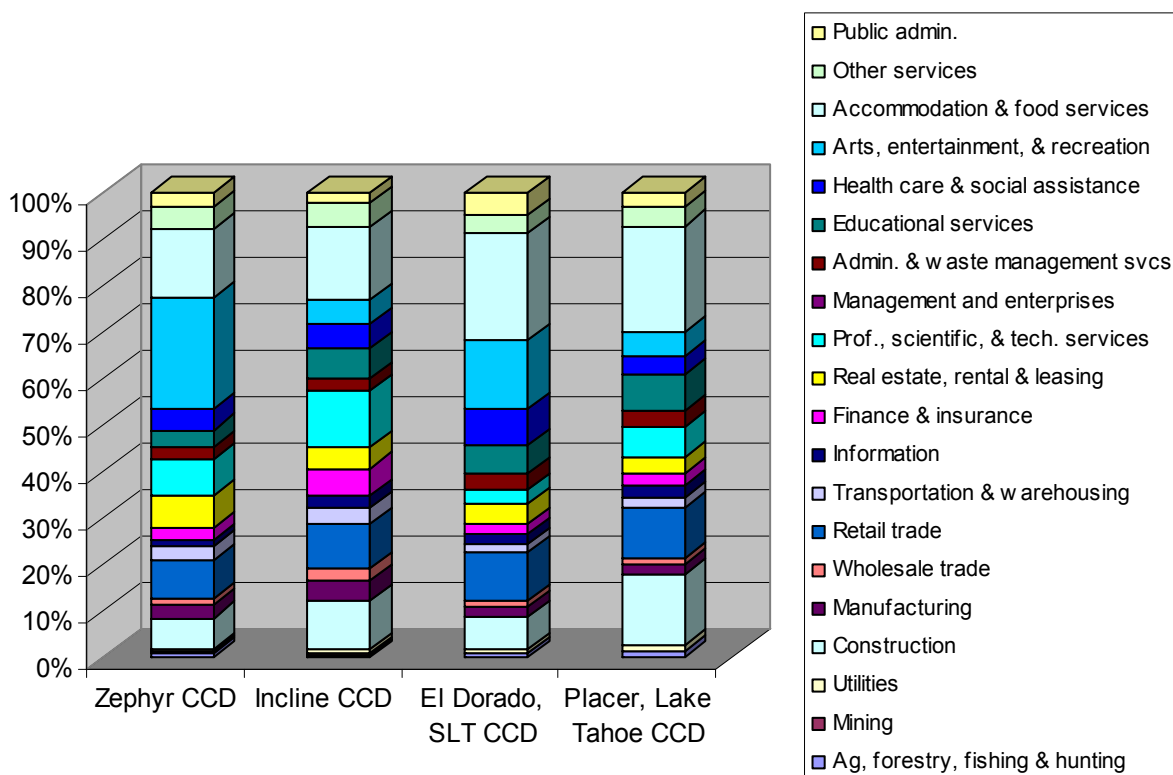
**Figure F19. Regional Comparison of Employment by Industry (NAICS), 2003**

Figure F-20 illustrates the employment structure of the GLTA and LTR in 2006. Employment represents part-time, full-time, seasonal, and temporary jobs in the given category. The GLTA has a greater degree of diversity than the LTR, which is to be expected given that the GLTA encompasses a metropolitan area, as well as rural areas. Tourism-related industries dominate the LTR economy with over a quarter of employment opportunities in accommodation and food services, and 8% in arts, entertainment, and recreation. Tourism-related industries assume a much smaller percentage in the GLTA with accommodation and food services accounting for 11% and arts, entertainment and recreation accounting for 3% of employment.



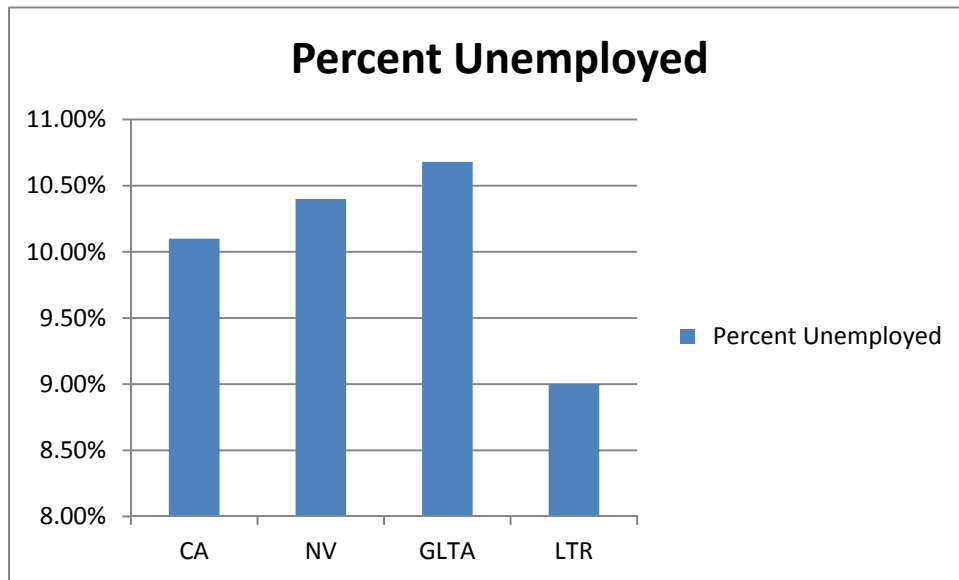
**Figure F20. Employment by Industry (NAICS), GLTA and LTR, 2006.**

Figure F21 illustrates employment by industry among census county divisions (CCD) within the Lake Tahoe Region. The Zephyr CCD far exceeds all other CCDs in the Lake Tahoe Region in the arts, entertainment, and recreation sector; this is explained by the large gaming industry located on the south shore in Nevada. Accommodation and food services provide the greatest number of positions in Incline, El Dorado, and Placer CCDs. The most diversified economy in the LTR is Incline Village CCD, meaning that employment by industry is more evenly distributed across industries in Incline CCD than in other CCDs.



**Figure F21. Employment Distribution by Industry (NAICS), 2000. Lake Tahoe Region by CCD**

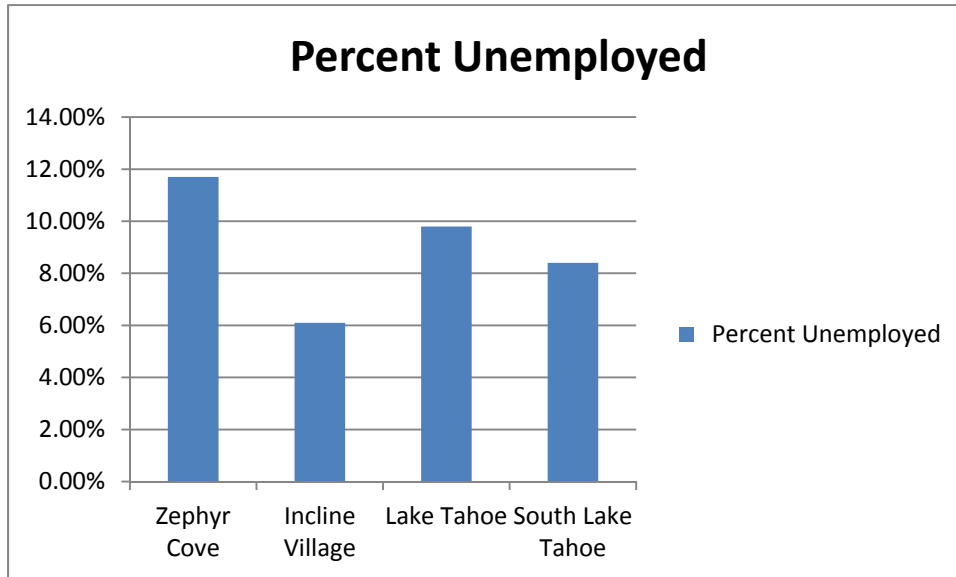
Figure F22 illustrates the unemployment rates for California, Nevada, the Greater Lake Tahoe Area, and the Lake Tahoe Region in 2011. The unemployment rate for the LTR was lower than the GLTA and both California and Nevada; and had the lowest unemployment rate of the four regions.



**Figure F22. Regional Unemployment, 2011**



When comparing the CCDs that comprise the LTR, it appears that south shore communities had higher unemployment rates than north shore communities (Figure F23). The higher unemployment rates on the south shore may be explained by the greater degree of employment being occupied by the arts, entertainment and recreation industries, which are subject to the seasonal influx of visitors. Employees in these industries often work seasonally.



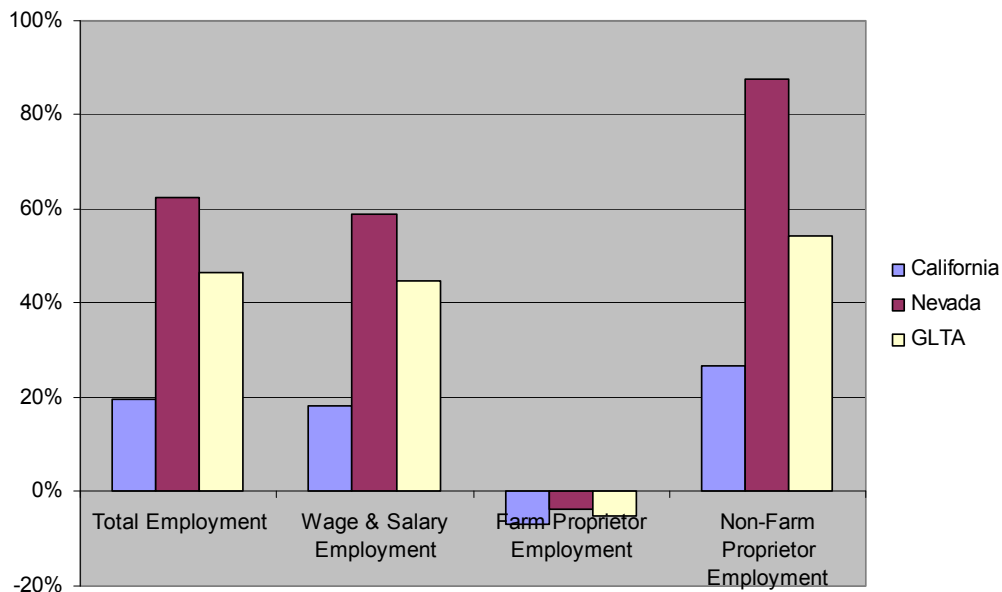
**Figure F23. Unemployment, Lake Tahoe Region CCDs, 2011.**

## F.5.2 Employment Trends

Overall, employment growth in the GLTA outpaced California but lagged behind Nevada. From 1993 to 2003, total employment in the GLTA increased by 46%. Nevada outpaced the GLTA by 19%; however, the GLTA outpaced California by 26% in increased employment opportunities.

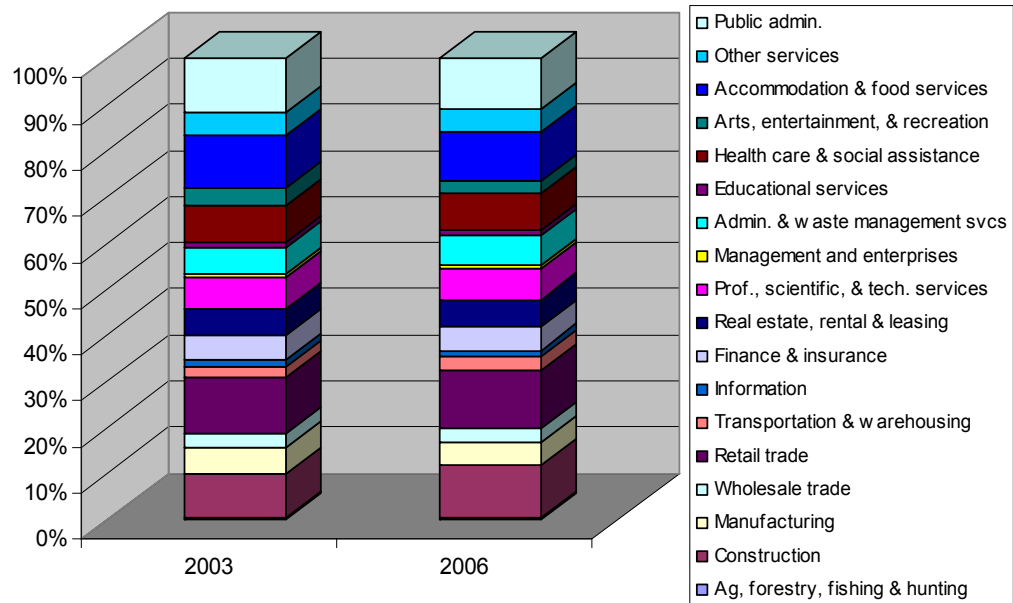
The greatest increase in positions in the GLTA was in the non-farm proprietor sector which increased by 54%. While the GLTA lagged behind Nevada's increase in the non-farm proprietor sector by 34%, the GLTA exceeded California's increase by 27%. The GLTA, Nevada, and California all experienced declining employment in the farm proprietor sector. The greatest loss was in California which declined by 7% and the smallest decline was in Nevada which declined by 4%.

While Nevada led California in increasing employment, all the Nevada counties represented in the GLTA were below the state average. The California counties were above the state average. Placer County increased employment opportunities by 74%, with the greatest percentage of the positions in wage and salary employment. Nevada County showed the largest gain from 1993 to 2003 in the non-farm proprietor sector and had the greatest number of positions in non-farm proprietor employment.



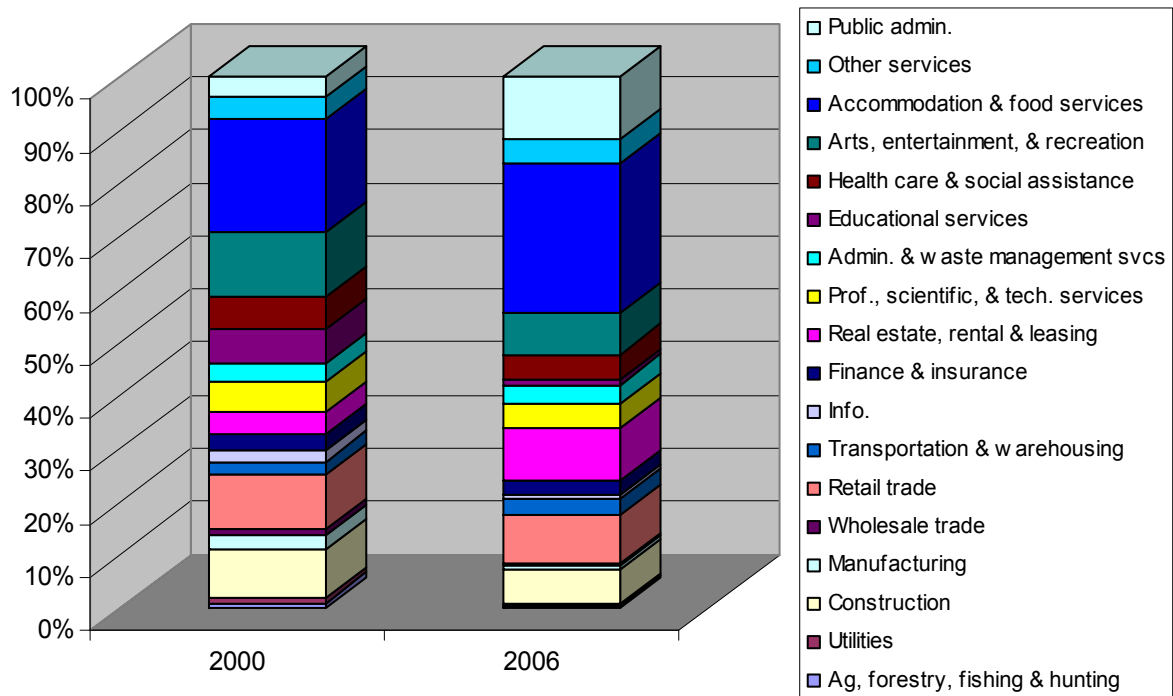
**Figure F24. Trends in Employment by Labor Sector, Regional, 1993-2003.**

From 2003 to 2006, employment by industry in the GLTA was relatively stable (Figure F25). Construction lead in growth, increasing employment by 1.64%, and accommodation and food services, which declined in total share of employment by 0.8%, accounted for the greatest decline in the GLTA.



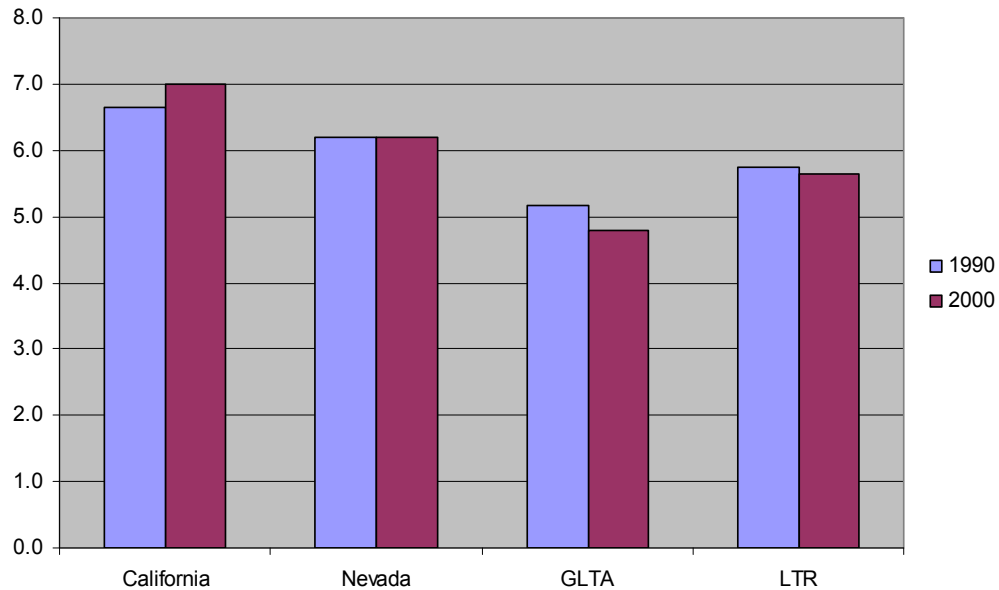
**Figure F25. Trends in Employment by Industry, Greater Lake Tahoe Region, 2003-2006**

Between 2000 and 2006, the Lake Tahoe Region's employment by industry was more volatile than the GLTA (Figure F26). Public administration grew by 8%, followed closely by accommodation and food services at 7% and real estate at 6%. Industries that exhibited a decline in share of employment are the arts, entertainment, and recreation sector, which declined by 4% and the construction sector, which declined by 3%.



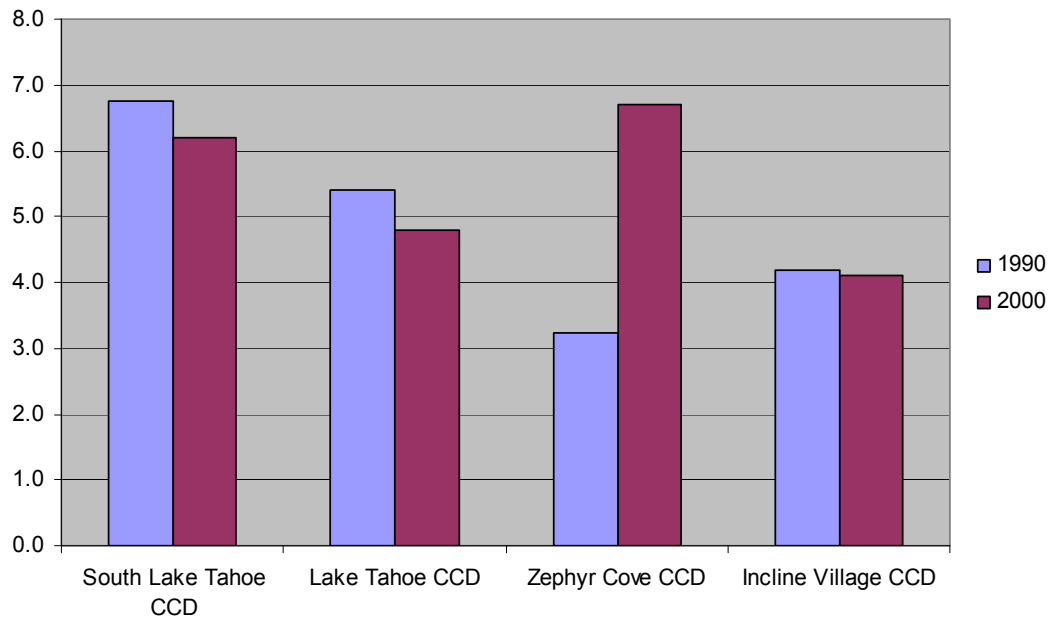
**Figure F26. Trends in Employment by Industry, Lake Tahoe Region, 2000-2006.**

Figure F27 illustrates trends in regional unemployment rates from 1990 to 2000. In both the GLTA and the LTR, unemployment rates fell over the 10-year period, while in Nevada the unemployment rate stayed the same and in California unemployment rose during the same period.



**Figure F27. Trends in Unemployment Rates, Regional, 1990 - 2000.**

Figure F28 shows that unemployment rates fell in all CCDs but the Zephyr Cove CCD, which in 1990 had the lowest unemployment rate of the CCDs but by 2000 had the highest.



**Figure F28. Trends in Unemployment Rates, Lake Tahoe Region, 1990- 2000.**

## F.5.3 Income

### Current Condition

Public administration, followed by construction, then health care and social assistance provided the greatest amount of income by industry in the GLTA in 2003 (Figure F29). Within the Lake Tahoe Region in 2006, the accommodation and food services accounted for the greatest share of labor income, followed closely by government (Figure F30).

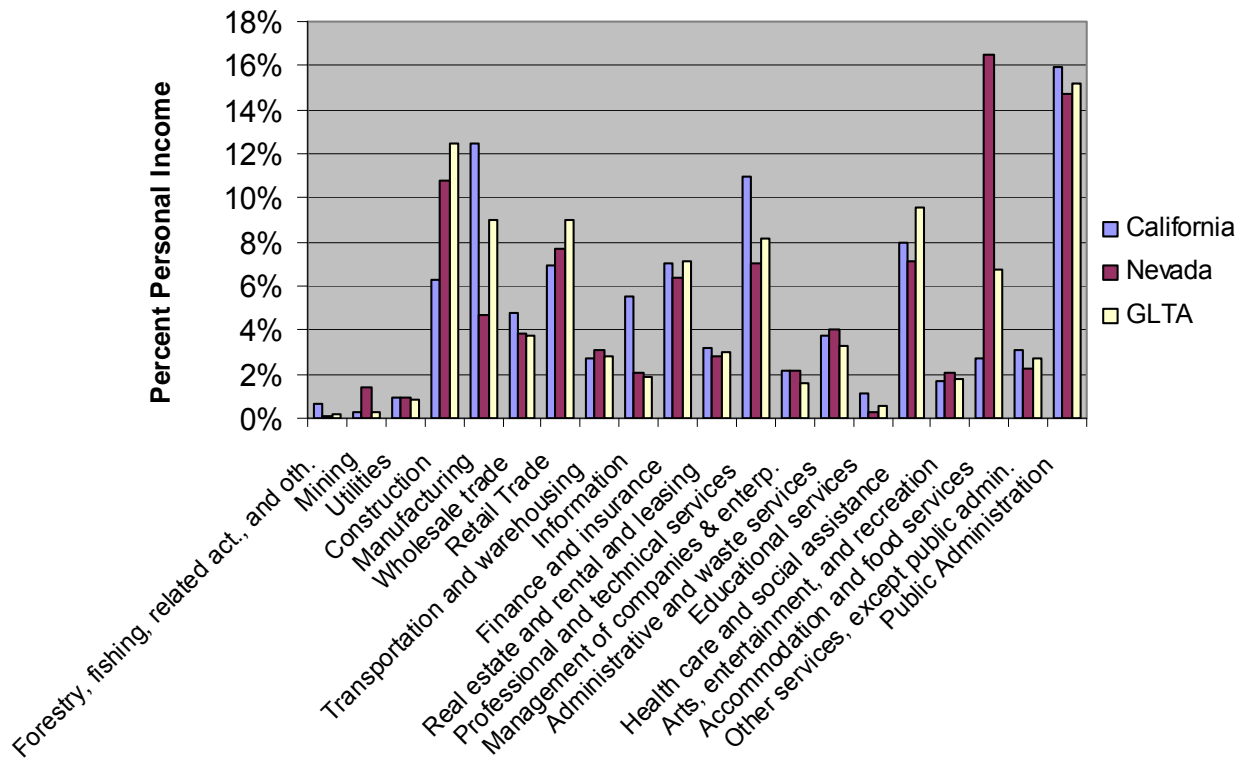
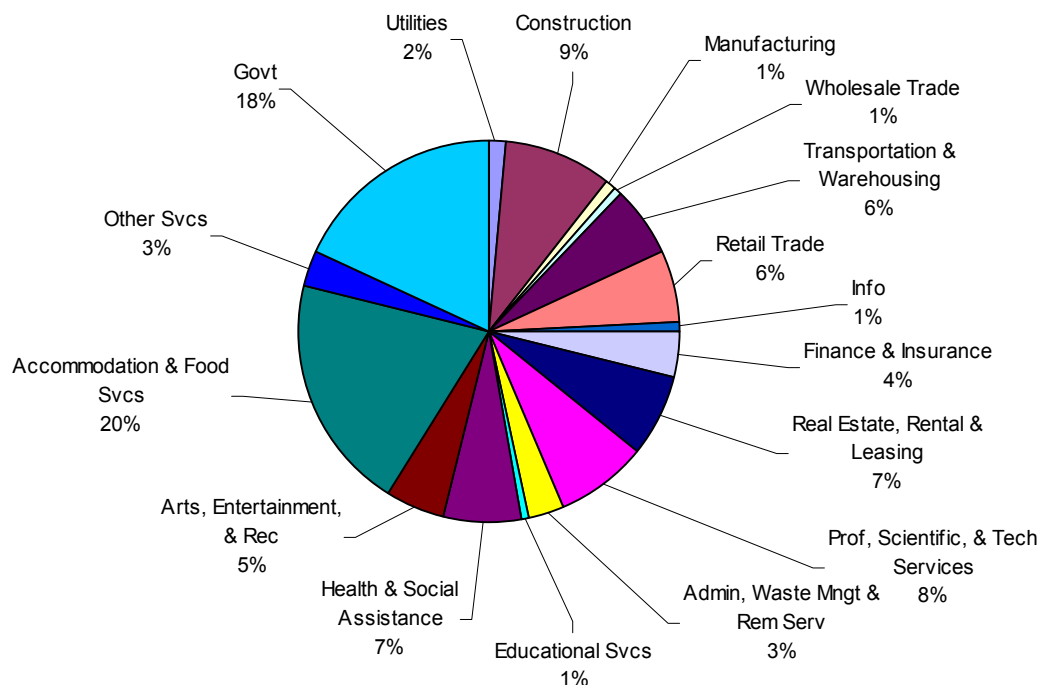
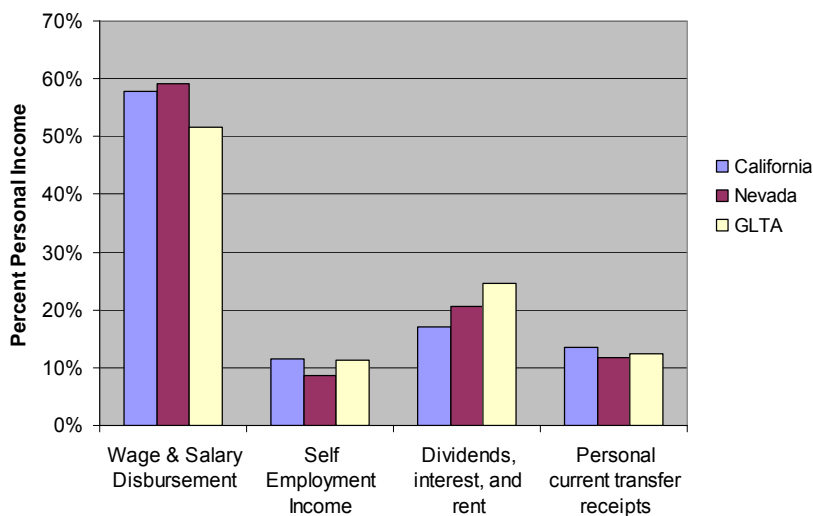


Figure F29. Income by Industry, Regional, 2003.



**Figure F30. Labor Income by Industry Sector, Lake Tahoe Region, 2006.**

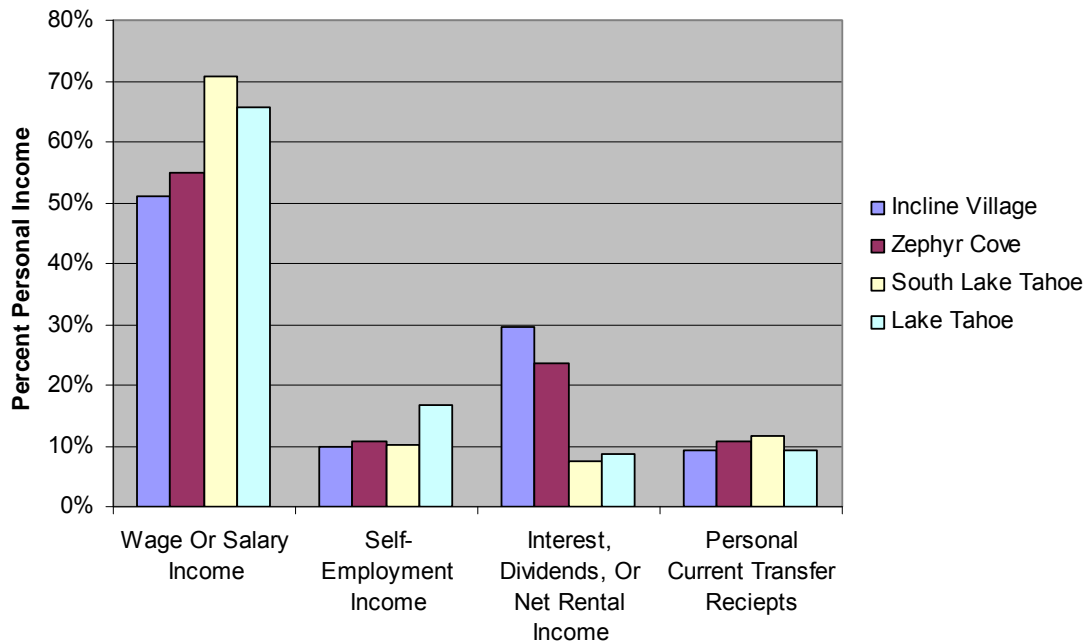
The GLTA differed from California and Nevada by having a greater share of income derived from dividends, interest, and rent than the two states, and a lesser share of personal income coming from wage and salary disbursements.



**Figure F31. Income by Labor Sector, Regional, 2003.**



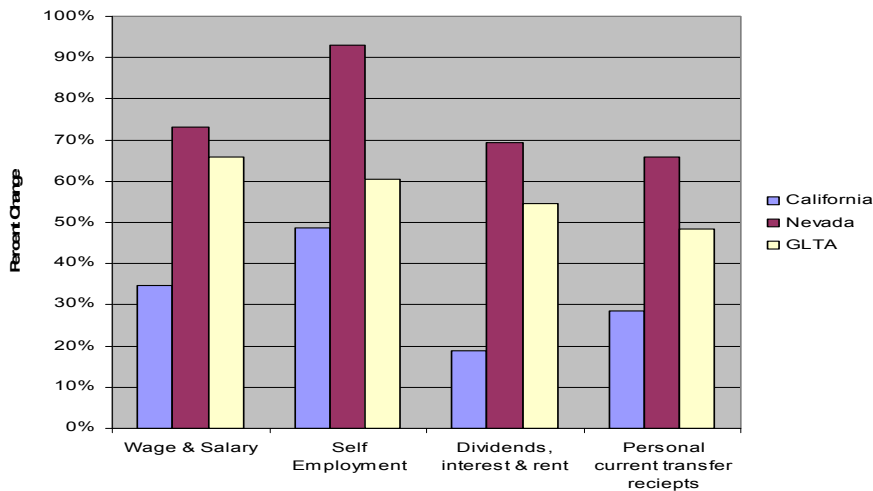
Income derived from the wage or salary income labor sector was the dominant source of income across all communities in the Lake Tahoe Region. On average, LTR communities in California derived 69% of personal income from wage and salary positions, compared to Nevada LTR communities where 52% of personal income was from wage and salary positions. In turn, 28% of personal income in Nevada LTR communities was earned through interest, dividends, or net rental income, while in California this sector only accounted for 8% of personal income.



**Figure F32. Income by Labor Sector, Lake Tahoe Region CCDs, 2003.**

## Trends

Of the four labor sectors, wage and salary positions grew the fastest in the GLTA. For both Nevada and California, the fastest growing labor sector was self-employment.



**Figure F33. Percent Change in Personal Income by Labor Sector, Regional, 1993-2003.**

## Discussion

Although accommodation and food services occupy more than a quarter of the employment opportunities in the Lake Tahoe Region (Figure F26), they represent only one fifth of the labor income (Figure F30), which means that the greatest portion of employment opportunities in the Lake Tahoe Region are low paying positions. In contrast, the second largest industry sector by employment is government, which occupies 15% of the employment opportunities and provides 18% of the labor income. Figure F34 illustrates the relationship between industry sectors in the Lake Tahoe Region and whether each sector's employment proportion is higher or lower than the proportion of wages.

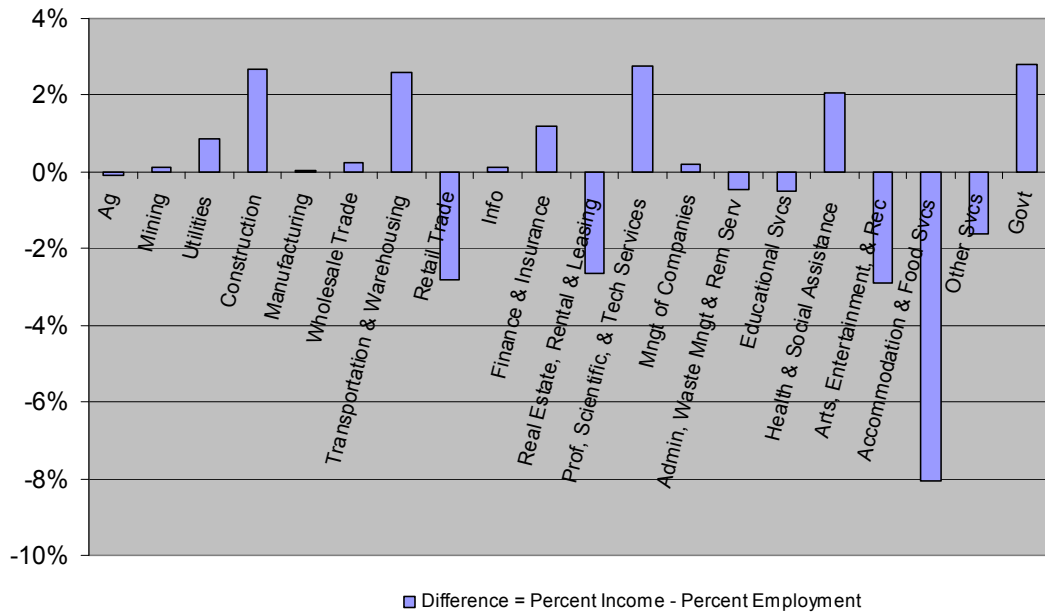


Figure F34. Relative Income by Industry, Lake Tahoe Region, 2006.

## F.6. Unit Economic Contribution Analysis

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### Methodology

An economic contribution analysis depicts the Forest Service's contribution to the local and regional economy. An economic contribution analysis differs from an impact analysis in that it does not report the economy-wide effects of some anticipated change but rather provides a snapshot of all the income, jobs and industries in an area that are related to National Forest resource management. Where an impact analysis may focus on the economic consequences of proposed alternatives, a contribution analysis provides a description of the structure, size, and dynamics of the current economy and the Forest Service's contribution to it.

Non-market benefits such as ecosystem services or social benefits are not captured in the economic contribution analysis. While non-market benefits such as carbon sequestration, scenic beauty, or opportunities for solitude are important, there is no accepted methodology on how to quantify these values. While the Forest Service does recognize the role of ecosystem services, it has yet to establish a formal policy and protocol on whether or how to quantify these values. For these reasons, non-market benefits will be captured in the Social Assessment section.

IMPLAN is the economic modeling tool created by the Forest Service in cooperation with the Federal Emergency Management Agency and the Bureau of Land Management that was used to estimate the Forest's contribution to the local economy. Originally developed to assist land managers in planning, IMPLAN has since been privatized and is currently run by the Minnesota IMPLAN Group (MIG). IMPLAN models the economic stimulus, i.e., the labor and income generated among 509 economic sectors identified in the North American Industrial Classification System (NAICS) within the study area. The economic sectors were aggregated by the first two digits of their classification number for report purposes to produce twenty aggregate sectors.

### Study Area

One of the most important decisions to be made in this type of analysis is the definition of a study area based on a functional local economy. The model built for the LTBMU is based on zip codes which concentrate on the physical boundary of the Basin. This determination is driven by the issues raised by the public and resource managers. The Lake Tahoe region is well defined by the mountain ridges around the lake.

The zip codes listed in Table F3 were used to model the "Lake Tahoe Region" economy.

**Table F3. Zip Codes for Economic Analysis for the Lake Tahoe Region**

<b>State</b>	<b>County</b>	<b>Zip Code</b>	<b>City/Town</b>
NV	Washoe	89402	Crystal Bay, NV
NV	Douglas	89413	Glenbrook, NV
NV	Douglas	89448	Zephyr Cove, NV
NV	Douglas	89449	Stateline, NV
NV	Washoe	89450	Incline Village, NV
NV	Washoe	89451	Incline Village, NV
NV	Washoe	89452	Incline Village, NV
NV	Carson City	89703	Carson City, NV
CA	Placer	96140	Carnellian Bay, CA
CA	Placer	96141	Homewood, CA
CA	El Dorado	96142	Tahoma, CA
CA	Placer	96143	Kings Beach, CA
CA	Placer	96145	Tahoe City, CA
CA	Placer	96146	Olympic Valley, CA
CA	Placer	96148	Tahoe Vista, CA
CA	El Dorado	96150	South Lake Tahoe, CA
CA	El Dorado	96151	South Lake Tahoe, CA
CA	El Dorado	96152	South Lake Tahoe, CA
CA	El Dorado	96154	South Lake Tahoe, CA

State	County	Zip Code	City/Town
CA	El Dorado	96155	South Lake Tahoe, CA
CA	El Dorado	96156	South Lake Tahoe, CA
CA	El Dorado	96157	South Lake Tahoe, CA
CA	El Dorado	96158	South Lake Tahoe, CA

Once the base economic model was built with IMPLAN, the following ‘Response Coefficients’, or rates of economic activity, were estimated.

**Recreation:** The local economic stimulus for every million dollars of non-local visitor expenditures while visiting the LTBMU.

**Wildlife and Fish:** The local economic stimulus for every million dollars of non-local visitor expenditures related to hunting, fishing, and wildlife watching while visiting the LTBMU.

**Ecosystem Restoration:** The acres of mechanical thinning and small openings created for ecosystem restoration.

**Forest Service Expenditures:** The local economic stimulus for every million dollars of salary and non-salary expenditures to carry out recreation management activities on the LTBMU.

The response coefficients were then imported into “FEAST”, an economic analysis tool developed for forest planning, along with baseline economic data and resource data to generate the economic contribution report. The following data on forest related activities and management were used to support the development of the report.

### **Recreation and Wildlife and Fish**

Annual visitors to the LTBMU by activity and by origin (local or non-local) from the National Visitor Use Monitoring (NVUM) survey for the Lake Tahoe Basin Management Unit, 2007.

Expenditure profiles from NVUM (Stynes and White 2007) by activity (including wildlife and fish), type of use (overnight or day use) and by residence (local or non-local).

## Forest Service Expenditures

Annual budget expenditures including salary and non-salary expenditures from fiscal year 2008 (October 2007 to September 2008).

- Base funding, congressionally-allocated funds
- Southern Nevada Public Land Management Act funds
- Environmental Improvement Project funding
- Erosion control grant funds administered by the LTBMU

LTBMU-related employment and labor income describes the “direct”, “indirect” and “induced” economic effects derived from expenditures associated with management activities. A “direct” effect is sales of goods and services by local businesses to National Forest visitors or to the LTBMU. The local purchase of goods and services by directly affected businesses for production purposes is referred to as the “indirect” effect. The local expenditure of income by employees and proprietors of directly and indirectly affected firms is referred to as an “induced” effect.

For example, a visitor who comes to the Lake Tahoe basin for the primary purpose of recreating on National Forest lands may also purchase accommodations off the forest. This would be a direct effect. Supplies purchased by the hotel to provide that hotel room would represent an indirect effect, and the employees of the hotel who spend their wage on groceries generates an induced effect. Induced and indirect impacts are also referred to as secondary, or ripple, effects. Secondary effects in the local economy can also be described as recirculated monies.

The more times money is circulated within the local economy before it “leaks” out, the greater the economic benefit is to the local economy in terms of income and employment. Leakage refers to when monies are spent outside of the local economy. How effective a community is in increasing the number of times a dollar is recirculated in the local economy is largely affected by the degree of economic diversity. The rate of spending and respending of money in an economy is called the “multiplier effect.”

In estimating the LTBMU’s economic contribution, it is important to note that when considering the economic contribution of recreation visitors, only non-local visitor expenditures are assessed in Table F4. This is not to say that spending behaviors by local recreationists do not influence the economic vitality of the area, but rather the “substitution effect” is unknown. Substitution effect refers to how spending behaviors would be affected if the LTBMU did not exist. It is conceivable that the local recreationists would find similar local recreation opportunities and their spending behavior would remain the same. In addition, expenditures by locals do not introduce “new money” into the economy.

## F.7. Current Conditions of Forest Economic Contribution

Table F4 describes the LTBMU's contribution to the Lake Tahoe Basin area as measured by jobs and labor income by industry sector. Note that "Jobs" is average annual employment and includes a combination of full and part time, temporary, and seasonal workers. "Labor Income" is the sum of employee compensation (the value of wages and benefits) and proprietor's income. The numbers in the "LTBMU-related" columns are Total Effects – direct effects plus the ripple (secondary) effects in the local economy.

**Table F4. LTBMU Economic Contribution to Lake Tahoe Region (2008)**

Industry	Employment (jobs)		Labor Income (Thousands of 2010 dollars)	
	Area Totals	FS-Related	Area Totals	FS-Related
Agriculture	54	54	\$2,070	\$1,751
Mining	51	6	\$2,261	\$277
Utilities	199	4	\$23,685	\$620
Construction	3,287	27	\$200,103	\$1,588
Manufacturing	242	69	\$14,983	\$1,979
Wholesale Trade	329	81	\$24,169	\$6,236
Transportation & Warehousing	654	66	\$27,195	\$2,842
Retail Trade	3,563	385	\$115,344	\$14,799
Information	411	32	\$26,545	\$2,044
Finance & Insurance	2,382	50	\$74,893	\$2,281
Real Estate & Rental & Leasing	7,594	89	\$107,985	\$1,592
Prof, Scientific, & Tech Services	3,316	160	\$178,494	\$7,437



<b>Industry</b>	<b>Employment (jobs)</b>		<b>Labor Income (Thousands of 2010 dollars)</b>	
Mngt of Companies	156	16	\$18,573	\$1,881
Admin, Waste Mngt & Rem Serv	2,189	82	\$78,082	\$2,717
Educational Services	681	20	\$15,962	\$726
Health Care & Social Assistance	3,748	95	\$239,840	\$10,931
Arts, Entertainment, and Rec	2,816	320	\$88,447	\$10,649
Accommodation & Food Services	10,167	1,784	\$316,644	\$54,786
Other Services	3,150	77	\$125,385	\$4,244
Government	7,623	175	\$498,144	\$14,343
<b>Total</b>	<b>52,612</b>	<b>3,593</b>	<b>\$2,178,808</b>	<b>\$143,722</b>
<b>FS as Percent of Total</b>	<b>---</b>	<b>6.83%</b>	<b>---</b>	<b>6.60%</b>

The LTBMU's contribution to employment in the LTR by program area by alternative is shown in Table F5. Of the Forest Service programs, the greatest economic stimulus to the GLTA and LTA's economy is due to the recreation program. Note: The row titled "Forest Service Expenditures" is the only place government employment for program planning and administration is counted. Employment in all other rows counts only private sector jobs.

**Table F5. Employment by Program Area for the Lake Tahoe Region**

Resource	Total Number of Jobs Contributed			
	Alternative A (Current)	Alternative B	Alternative C	Alternative D
Recreation: non-local only	3,166	3,324	3,641	2,691
Wildlife and Fish: non-local only	87	92	100	74
Grazing	0	0	0	0
Timber	0	0	0	0
Minerals	0	0	0	0
Ecosystem Restoration	50	50	50	50
Payments to States/Counties	31	31	31	31
Forest Service Expenditures	258	258	258	258
Total Forest Management	3,593	3,755	4,081	3,105
Percent Change from Current	---	4.5%	13.6%	-13.6%

## Discussion

Susan Winter, economist and economic modeler with the Forest Service's Planning Analysis Group (PAG), performed the IMPLAN modeling for this analysis, and indicated that an economic contribution to the area of analysis of close to 4% is a large contribution in comparison with other National Forests. The typical contribution is 1 - 2%. This contribution is relatively large because the LTBMU is one of the smallest forests in the country and has the highest per acre visitor rate. As illustrated in numerous tables, the dominant industries in the LTR are related to recreation and tourism. One of the industry's most dependent on the LTBMU for economic stimulus is accommodation and food services, which, as noted in the income discussion, is dominated by low wage positions. However, the LTBMU also contributes to relatively high wage positions in its administrative capacity related to the Southern Nevada Public Land Management Act. In addition, the LTBMU receives and administers, on average, \$37.5 million in federal funding annually to support environmental improvement projects, which contributes to a large share of the employment and income being related to the government sector.

**Table F6. Risk Assessment**

Current Condition	Risks	Effects on Management
The Lake Tahoe Region is highly dependent on tourism. The greatest contribution by the LTBMU is in tourism related industries.	The Lake Tahoe Region is highly vulnerable to national social, economic, political, and environmental conditions that affect travel and tourism.	Diversify economic opportunities by coordinating with local, county, and state jurisdictions, and economic development organizations to identify and develop small-scale industries dependent on non-timber forest products.
The second greatest contribution of the LTBMU in the LTR is from government expenditures on salary and non-salary items. Much of the operating budget comes from SNPLMA, whose funds are guaranteed through 2012.	There is a great level of uncertainty about what the funding level from SNPLMA will be after 2012. This could translate into a considerably sizable loss of jobs and labor income.	Eventually the SNPLMA funding will run out, likely in the first decade of the revised plan. The budget is expected to drop by around half.
The LTBMU's largest contribution to employment and labor income is in low wage positions.	Wages cannot support cost of living for many local employees. Creates community instability.	Create tourism related economic opportunities for small owner-operated businesses that pay higher wages. Increase outfitter and guiding permittee opportunities.

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